AMENDMENTS TO THE CLAIMS:

The following listing of claims replaces all prior versions and listings of claims in the application. Please amend claims 4, 6, and 11; and add new claims 13-39, as follows:

Claims 1-3 (Canceled).

4. (Currently Amended) An etching method for exposing a layer of Cu by etching a layer of SiN_x on the layer of Cu with an etching gas constituted of C, H, and F, and O_2, wherein;

said gas constituted of C, H, and F is CHF_3, and the O_2 suppresses oxidation of the layer of Cu exposed by the etching of the layer of SiN_x.

Claim 5 (Canceled).

6. (Currently Amended) An etching method for exposing a layer of Cu by etching a layer of SiN_x on the layer of Cu, the method, wherein;

a step in which a processing gas containing a gas constituted of C, H, and F, and O_2 is raised to plasma and an SiN_X layer on a Cu layer is etched using a photoresist layer having a specific pattern formed therein, thereby exposing said Cu layer; and

a step in which H_2 is introduced into said processing chamber and an H_2 plasma process is implemented on said Cu layer that has become exposed by raising the H_2 to plasma.

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wherein implementing the H_2 plasma process on the Cu layer that has become exposed removes C atoms and F atoms introduced into the Cu layer that has become exposed during etching.

7. (Previously Presented) An etching method according to claim 6, wherein; said gas constituted of C, H and F is CH_2F_2.

8. (Previously Presented) An etching method according to claim 6, wherein; said gas constituted of C, H and F is CH_3F.

9. (Previously Presented) An etching method according to claim 6, wherein; said gas constituted of C, H and F is CHF_3.

10. (Previously Presented) An etching method according to claim 6, wherein; an inert gas is added into said processing gas.

11. (Currently Amended) An etching method according to claim 6, wherein; said photoresist layer is removed during an ashing step, and wherein said etching step, said ashing step, and said H_2 ~~etching step~~ plasma process are implemented inside a single processing chamber.

12. (Previously Presented) An etching method according to claim 6, wherein; a step implemented after said etching step and before said H_2 plasma processing step, in which said photoresist layer is ashed.

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13. (New) A method for etching an SiN_x layer on a Cu layer of a workpiece placed inside a processing chamber, the method comprising:

introducing a processing gas comprising C, H, and F, and O_2 into a processing chamber; and

raising the processing gas introduced into the processing chamber to plasma to etch the SiN_x layer such that a portion of the Cu layer is exposed,

wherein introducing the O_2 into the processing chamber suppresses injection of C atoms and F atoms of the processing gas into the exposed portion of the Cu layer.

14. (New) The method of claim 13, wherein processing gas is CH_2F_2.

15. (New) The method of claim 13, wherein the processing gas is CH_3F.

16. (New) The method of claim 13, wherein the processing gas is CHF_3.

17. (New) The method of claim 13, further comprising introducing an inert gas into the processing chamber.

18. (New) The method of claim 13, further comprising treating the exposed portion of the Cu layer with H_2 plasma by introducing H_2 into the processing chamber after etching and raising the H_2 to plasma such that the exposed portion of the Cu layer is exposed to the H_2 plasma, wherein exposing the exposed portion of the Cu layer to

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the H_2 plasma removes C atoms and F atoms introduced into the exposed portion of the Cu layer during etching.

19. (New) The method of claim 18, wherein etching the SiN_x layer comprises providing a photoresist layer having a specific pattern on the SiN_x layer; and the method further comprises ashing the photoresist layer after etching the SiN_x layer and before treating the exposed portion of the Cu layer with H_2 plasma.

20. (New) The method of claim 19, wherein the etching, the ashing, and the treating of the exposed portion of the Cu layer with H_2 plasma are implemented inside a single processing chamber.

21. (New) The method of claim 19, further comprising setting the workpiece to a temperature less than or equal to 100° C during the ashing step.

22. (New) A method for etching an SiN_x layer on a Cu layer of a workpiece placed inside a processing chamber, the method comprising:

introducing a processing gas comprising C, H, and F, and O_2 into a processing chamber; and

raising the processing gas introduced into the processing chamber to plasma to etch the SiN_x layer such that a portion of the Cu layer is exposed,

wherein introducing the O_2 into the processing chamber suppresses oxidation of the exposed portion of the Cu layer.

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23. (New) The method of claim 22, wherein processing gas is CH_2F_2.

24. (New) The method of claim 22, wherein the processing gas is CH_3F.

25. (New) The method of claim 22, wherein the processing gas is CHF_3.

26. (New) The method of claim 22, further comprising introducing an inert gas into the processing chamber.

27. (New) The method of claim 22, further comprising treating the exposed portion of the Cu layer by introducing H_2 into the processing chamber after etching and raising the H_2 to plasma such that the exposed portion of the Cu layer is exposed to the H_2 plasma, wherein exposing the exposed portion of the Cu layer to the H_2 plasma removes C atoms and F atoms introduced into the exposed portion of the Cu layer during etching.

28. (New) The method of claim 27, wherein etching the SiN_x layer comprises providing a photoresist layer having a specific pattern on the SiN_x layer; and the method further comprises ashing the photoresist layer after etching the SiN_x layer and before treating the exposed portion of the Cu layer with H_2 plasma.

29. (New) The method of claim 28, wherein the etching, the ashing, and the treating of the exposed portion of the Cu layer with H_2 plasma are implemented inside a single processing chamber.

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30. (New) The method of claim 28, further comprising setting the workpiece to a temperature less than or equal to 100° C during the ashing step.

31. (New) A method for etching an SiN_x layer on a Cu layer of a workpiece placed inside a processing chamber, the method comprising:

introducing a processing gas comprising C, H, and F, and O_2 into a processing chamber; and

raising the processing gas introduced into the processing chamber to plasma to etch the SiN_x layer such that a portion of the Cu layer is exposed,

wherein introducing the O_2 into the processing chamber suppresses oxidation of the exposed portion of the Cu layer and suppresses injection of C atoms and F atoms of the processing gas into the exposed portion of the Cu layer.

32. (New) The method of claim 31, wherein processing gas is CH_2F_2.

33. (New) The method of claim 31, wherein the processing gas is CH_3F.

34. (New) The method of claim 31, wherein the processing gas is CHF_3.

35. (New) The method of claim 31, further comprising introducing an inert gas into the processing chamber.

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36. (New) The method of claim 31, further comprising treating the exposed portion of the Cu layer by introducing H_2 into the processing chamber after etching and raising the H_2 to plasma such that the exposed portion of the Cu layer is exposed to the H_2 plasma, wherein exposing the exposed portion of the Cu layer to the H_2 plasma removes C atoms and F atoms introduced into the exposed portion of the Cu layer during etching.

37. (New) The method of claim 36, wherein etching the SiN_x layer comprises providing a photoresist layer having a specific pattern on the SiN_x layer; and the method further comprises ashing the photoresist layer after etching the SiN_x layer and before treating the exposed portion of the Cu layer with H_2 plasma.

38. (New) The method of claim 37, wherein the etching, the ashing, and the treating of the exposed portion of the Cu layer with H_2 plasma are implemented inside a single processing chamber.

39. (New) The method of claim 37, further comprising setting the workpiece to a temperature less than or equal to 100° C during the ashing step.

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